

REMARKS

In the present Amendment, independent claim 1 is amended to recite “consisting essentially of” language. In other words, the recitation “at least one layer comprising alloy” is amended to recite “at least one layer consisting essentially of alloy.”

Independent claim 2 is also amended to recite “consisting essentially of” language.

Claim 3 is amended to correct a typographical error in the spelling of the word “group.”

Claim 8 is amended to correct the spelling of the word “complex.”

All of the claims are amended for precision of language and are directed to form only. Specifically, claims 1 and 2 are amended to recite comprising language. For example, claim 1 is amended to replace the recitation “including at least one layer” with the recitation “comprising at least one layer.” Support for this Amendment may be found in the claims. For example, each of claims 5 and 9 recite an additional layer, and claim 9 already recites “*further* comprising” language. Moreover, Applicants’ Embodiments 1, 3 and 4 and Figures 1-4 and 8-11, for example, show a negative electrode with a multilayer structure. Thus, Applicants respectfully assert that comprising language is within the scope of Applicants’ disclosure. Accordingly, the present claims are amended to reflect this change. For example, claim 5 is amended to recite “*further* comprising a layer comprising a lithium occlusion material.”

No new matter is added, and entry of the Amendment is respectfully requested. After entry, claims 1-10 will be pending.

I. Status of the Application

In paragraph 4 of the Action, the Examiner indicates that a legible copy of the references filed with Applicants' IDS of July 22, 2004, is required. Accordingly, Applicants submit with this Amendment a copy of the International Search Report, which includes the references listed in the Form PTO/SB/08 that accompanied Applicants' IDS of July 22, 2004, along with copies of the references. Applicants also submit herewith a clean Form PTO/SB/08.

II. Applicants' Response to the Examiner's Claim Rejections

A. The Amended Claims Are Not Indefinite

In paragraph 1 of the Action, claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

With regard to claims 1 and 2, Applicants respectfully assert that claims 1 and 2, as amended, distinctly claim the subject matter which Applicants regard as the invention. In this regard, the Examiner's attention is directed to page 9, line 18 to page 10, line 10 of the present specification, which discloses examples of various alloys and complex oxides of the invention.

As noted, claim 3 is amended to correct the spelling of the word group.

In view of the above, withdrawal of the § 112 rejection is respectfully requested.

B. The Amended Claims are Patentable Over Takeuchi

In paragraph 3 of the Action, claims 1-10 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,030,726 to Takeuchi et al.

Applicants respectfully traverse the rejection. Applicants assert that amended claims 1 and 2 are patentable over Takeuchi for the following reasons.

Amended claim 1 recites a negative electrode for a secondary battery comprising at least one layer consisting essentially of an alloy or complex oxide of (1) a metal forming alloy with lithium or lithium and (2) a metal not-forming alloy with lithium.

Amended claim 2 recites a negative electrode for a secondary battery comprising a layer consisting essentially of an alloy or complex oxide of (1) a metal forming alloy with lithium and (2) a metal not-forming alloy with lithium.

Takeuchi teaches a negative electrode for a secondary battery comprising a single layer comprising a **metal (1)** that forms an alloy with lithium, a **metal (2)** that does not form any alloy with lithium, and (3) carbon particles (e.g., graphite).

However, Takeuchi does not teach a layer containing *only* metal (1) that forms an alloy with lithium and metal (2) that does not form an alloy with lithium. Every example in Takeuchi's disclosure contains metal (1), metal (2) *and* carbon.

In more detail, according to Takeuchi's working and comparative Examples, the metal (1), the metal (2) *and* the carbon particles are blended together to form a powder. See, Takeuchi's Embodiments 1-6 and Comparative Examples 1-2. Specifically, Takeuchi discloses that the carbon particles bear the metal (1) and metal (2). See, e.g., Takeuchi col. 4 at lines 41-47. The powder is mixed with N-methyl pyrrolidone solution to form a paste, and the paste is applied onto a collector made of copper foil, to form a negative electrode. See, e.g., Takeuchi's embodiments 7-16, and Comparative Examples 3 and 4.

On the other hand, the invention according to claims 1 and 2 has a layer consisting essentially of an alloy (or complex oxide) of a metal (1) or lithium and a metal (2). In this

regard, Applicants disclose four embodiments of the present invention—embodiments 1, 2, 3 and 4, corresponding to Figures 1, 5, 8 and 10, respectively—and in each of the embodiments the layer containing metal (1) and metal (2) does not contain carbon. In embodiments 1 and 4, Applicants disclose a first active metal layer, which may be a carbon layer. See Tables 1 and 4, at pages 34 and 36, respectively. However, the layer containing metal (1) and metal (2) is a separate layer. See, e.g., Figure 1. Furthermore, Applicants disclose two examples where the first active material layer consists of tin (Sn). See, example 4, in Table 1, at page 34 of the present specification, and example 14, in Table 4, at page 36.

Moreover, in embodiment 2, Applicants disclose a negative electrode having no first active metal layer, *i.e.*, a negative electrode comprising **only** a collector 1b and an active material layer 8b, containing a metal (1) and a metal (2). Thus, in embodiment 2, Applicants disclose a negative electrode containing no carbon.

Accordingly, the present invention is a negative electrode that **does not** require a single layer of carbon and metals (1) and (2), *i.e.*, a single layer wherein metals (1) and (2) are supported on carbon particles. In fact, an electrode having a single layer of carbon and metals (1) and (2) are excluded from the scope of claims 1 and 2, which recite a layer consisting essentially of metals (1) and (2). The presence of carbon in the layer consisting essentially of metals (1) and (2) materially affects the novel and basic characteristics of the claimed invention.

For example, Comparative Example 1 contains a mono layer of carbon particles supporting Si as the metal (1) and Cu as the metal (2). The battery of comparative Example 1 rapidly faded and capacity deteriorated compared to the Examples of the present invention. In

addition, Applicants' Comparative Example 1 is an example of Takeuchi's disclosure. See page 17, second full paragraph, of the present specification.

In view of the above, carbon is essential to Takeuchi's negative electrode. Takeuchi discloses metal (1) and metal (2) supported on carbon particles, and Takeuchi does not teach or fairly suggest a negative electrode containing a layer that does not contain carbon particles.

For the above reasons, it is respectfully submitted that claims 1-10 are patentable over Takeuchi. Accordingly, withdrawal of the rejection is respectfully requested.

III. Conclusion

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

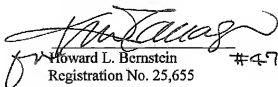
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